

APPENDIX B

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1. A deceleration – limiting barrier, comprising:
a net;
anchors;
a flexible strip arranged a flexible strip arranged to secure the net to the anchors, with portions of the strip joined together in a manner as to be susceptible to being pulled apart under a load that is less than a load capacity of the strip; and
a first sacrificial panel adapted to hold up the net in a vertical position.
2. The barrier of claim 1, wherein the portions of the strip are joined with fasteners having a tensile strength that is less than a tensile strength of the strip.
3. The barrier of claim 2, wherein the fasteners are stitched into the portions of the strip.
5. The barrier of claim 1, wherein the first sacrificial panel includes a smooth surface on one side.
6. The barrier of claim 1, further comprising a second sacrificial panel, the first and second sacrificial panels sandwiching the net therebetween.
7. The barrier of claim 1, wherein a plurality of barriers are placed end-to-end alongside a roadway.
8. The barrier of claim 1, wherein the strip provides a substantially constant level of deceleration.
9. The barrier of claim 1, wherein the strip provides a non-constant level of deceleration.
10. A barrier for limiting decelerating of a moving body, comprising:
means for receiving and retaining the moving body;

means for anchoring the receiving and retaining means;

means for decelerating the moving body in a controlled manner to thereby limit the deceleration thereof to below a predefined maximum deceleration level; and

a first sacrificial panel adapted to hold up the means for receiving and retaining the moving body.

12. The barrier of claim 10, wherein the deceleration means provides a substantially constant level of deceleration.

13. The barrier of claim 10, wherein the deceleration means provides a non-constant level of deceleration.

14. A deceleration-limiting roadway barrier system, comprising:

a first row of barriers positioned end-to-end alongside a roadway;

a second row of barriers positioned end-to-end alongside the first row of barriers, the barriers of the first row being staggered from the barriers of the second row;

a plurality of anchors fixedly mounted in the ground alongside the roadway;

each barrier comprising a net and one or more flexible strips arranged to secure the net to one or more anchors, with portions of each strip joined together in a manner as to be susceptible to being pulled apart under a load that is less than a load capacity of the strip; and

a first sacrificial panel adapted to hold up the net in a vertical position.

16. The roadway barrier system of claim 14, wherein the first sacrificial panel includes a smooth surface on one side.

17. The roadway barrier system of claim 14, wherein each barrier further comprises a second sacrificial panel, the first and second sacrificial panels sandwiching the net therebetween.

18. The roadway barrier system of claim 14, wherein the strip provides a substantially constant level of deceleration.

19. The roadway barrier system of claim 14, wherein the strip provides a non-constant level of deceleration.
20. The roadway barrier system of claim 14, further comprising a plurality of support members mounted alongside the first and second row of barriers.
21. The roadway barrier system of claim 14, wherein each barrier has a male portion and a corresponding female portion of a mated joint.
22. A method of decelerating a moving body, comprising:
 - supporting a net with a first sacrificial panel that is also capable of deflecting moving bodies colliding tangentially therewith;
 - receiving the moving body in the net;
 - deploying a plurality of energy absorbing straps attached to the net;
 - decelerating the moving body using the energy absorbing straps; and
 - limiting the deceleration of the moving body to below a predefined maximum deceleration level.
24. The method of claim 22, further comprising sandwiching the net between the first sacrificial panel and a second sacrificial panel.
25. The method of claim 22, further comprising anchoring a first row of nets end-to-end alongside a roadway and a second row of nets end-to-end alongside the first row.
26. The method of claim 25, wherein the nets in the first row are staggered relative to the nets in the second row.
27. The method of claim 22, further comprising decelerating the moving body at a substantially constant deceleration.
28. The method of claim 22, further comprising decelerating the moving body at a non-constant deceleration.

29. The deceleration-limiting barrier of claim 6 wherein the first and second sacrificial panels are made of a thin layer of epoxy, concrete or plywood, or combinations thereof.
30. The barrier of claim 10 wherein the first sacrificial panel is made of a thin layer of epoxy, concrete or plywood, or combinations thereof.
31. The deceleration-limiting roadway barrier system of claim 17 wherein the first and second sacrificial panels are made of a thin layer of epoxy, concrete or plywood, or combinations thereof.
32. The method of claim 22 wherein the first and second sacrificial panels are made of a thin layer of epoxy, concrete or plywood, or combinations thereof.
33. A barrier for decelerating a moving body, comprising:
receiving means for receiving and retaining the moving body upon the moving body impacting against the receiving means, the moving body comprising means imparting forces against the receiving means upon impact by a moving body;
anchoring means for anchoring the receiving means;
means for decelerating the moving body in a controlled manner to thereby limit the deceleration thereof to below a predefined maximum deceleration level, the means for decelerating the moving body comprising at least one flexible, energy absorbing strap connected intermediate the receiving means and the anchoring means for receiving forces exerted longitudinally along the length of the strap upon impact by a moving body upon the receiving means, the strap being folded upon itself to form at least one loop of mutually adjacent, doubled lengths of strap, the mutually adjacent lengths of strap being stitched together by stitches formed through the mutually adjacent lengths of strap, the tensile strength of the stitches being less than that of the strap and being sufficiently low that they are ripped apart by the forces applied along the length of the strap by the moving body, the strap being of sufficient tensile strength to retain longitudinal continuity in the event the at least one loop is pulled apart upon the stitches being ripped apart by said longitudinal forces.

34. The barrier of Claim 33, wherein the stitches are formed in a pattern extending longitudinally along the adjacent lengths of strap, whereby the stitches are ripped apart sequentially upon the application of forces along the length of the strap.

35. The barrier of Claim 33, wherein the stitches extend longitudinally along the adjacent lengths of strap.

36. A barrier for decelerating a moving body, comprising:

means for receiving and retaining the moving body;

means for anchoring the receiving and retaining means;

means for decelerating the moving body in a controlled manner to thereby limit the deceleration thereof to below a predefined maximum deceleration level, the means for decelerating the moving body comprising at least one flexible, energy absorbing strap connected intermediate the means for receiving and retaining the moving body and the means for anchoring the receiving and retaining means, the strap having a plurality of loops formed therein and mutually spaced along the strap, each loop being formed of mutually adjacent lengths of the strap stitched together by sacrificial stitching formed between the mutually adjacent lengths of strap and defining stitched portions in the respective loops, the tensile strength of the strap being greater than that of the stitches.

37. The barrier of Claim 36, wherein the load capacity of the energy absorbing strap is expressed by the equation:

$$Load = Fr \cdot (Xm1 + Xm2 + Xm3 + \dots + Xmi)$$

wherein the energy absorbing stroke of each loop comprises the length of the respective stitched portion formed therein, and wherein the sum of $Xm1$, $Xm2$, $Xm3$, ..., Xmi represents the total stroke provided by the individual loops.

38. The barrier of Claim 37, wherein the strokes of each loop are identical.

39. The barrier of Claim 37, wherein the strokes of each of the respective loops are not identical.

40. The barrier of Claim 37, wherein the load capacities of the loops differ.

41. The barrier of Claim 40, the loops comprising means for applying successive decelerative forces upon a moving body impinging upon the means for receiving and retaining the moving body as the loops are ripped apart, the stitches of at least one of the loops being of greater tensile strength than

those of at least one other loop, whereby the decelerative forces applied by the loop having stitches of greater tensile strength are greater than those applied by the at least one other loop.

42. The barrier of Claim 41, wherein the energy absorbing strap comprises means for applying decelerative forces upon a moving body impinging upon the means for receiving and retaining the moving body as the loops are successively ripped apart.

43. The barrier of Claim 40, wherein the energy absorbing strap comprises means for applying successively greater decelerative forces upon a moving body impinging upon the receiving means upon loops of successively greater load capacity being ripped apart.

44. A method of decelerating a moving body, comprising:

providing a means for receiving and retaining the moving body;

deploying a plurality of energy absorbing straps attached to the means for receiving and retaining the moving body, each of the energy absorbing straps being folded upon itself to form one or more loops of mutually adjacent, doubled lengths of strap, the mutually adjacent lengths of strap being stitched together by stitches formed through the mutually adjacent lengths of strap, the tensile strength of the straps being greater than that of the stitches, the stitches being formed along at least part of the lengths of the mutually adjacent lengths of strap;

receiving the moving body in the means for receiving and retaining the moving body;

decelerating the moving body by resistance provided by the stitches as they are ripped apart upon impact from the moving body ; and

limiting the deceleration of the moving body to below a predefined maximum deceleration level, the step of limiting the deceleration of the moving body including providing stitches of tensile strength less than the decelerative forces transmitted to the energy absorbing straps by the moving body.

45. The method of decelerating a moving body of Claim 44, comprising providing multiple loops in each energy absorbing strap, the loops being mutually spaced along the length of each strap, and wherein the method of decelerating a moving vehicle comprises decelerating the moving body by resistance provided by the stitches of one or more of the multiple loops as they are ripped apart as forces are exerted along the length of the strap.